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10/531,411	11/04/2005	Wenyuan Shi	UCLA-007	8124

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BOZICEVIC, FIELD & FRANCIS LLP
1900 UNIVERSITY AVENUE
SUITE 200
EAST PALO ALTO, CA 94303

EXAMINER	
ZEMAN, ROBERT A	
ART UNIT	**PAPER NUMBER**
1645	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,411	SHI ET AL.	
	Examiner	Art Unit	
	Robert A. Zeman	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-30* is/are pending in the application.

4a) Of the above claim(s) *2-4,10,13-18,21,22,25 and 30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-9,11,12,19,20,23,24 and 26-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The amendment and response filed on 4-11-2007 are acknowledged. Claims 1, 11 and 19 have been amended. Claims 5 and 6 have been canceled. Claims 1-4 and 7-30 are pending. Claims 2-4, 10, 13-18, 21-22 and 30 are withdrawn from consideration as being drawn to non-elected inventions. Claims 1, 7-9, 11-12, 19-20, 23-24 and 26-29 read on the elected invention (antibodies to *Lactobacillus* species) and are currently under examination.

Claim Objections Maintained

The objection to claim 1 for reciting material drawn to non-elected inventions is maintained. As said claim is not allowable, Applicant is not entitled to consideration of additional species. Appropriate correction is required.

Claim Rejections Withdrawn

The rejection of claim under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. (i.e. product of nature) is withdrawn in light of the amendment thereto.

The rejection of claim 1 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use the term "high specificity and sensitivity" is withdrawn in light of the amendment thereto.

The rejection of claim 11 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the term "at least substantially the same sensitivity and specificity of SWLA5" is withdrawn in light of the amendment thereto.

The rejection of claims 1, 5-8, 11-12, 19-20, 23-24 and 26-29 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ralls et al. (WO 00/73492 – IDS filed on 11-6-2006) is withdrawn in light of the amendment thereto.

Claim Rejections Maintained

35 USC § 112

Biological Deposit Requirement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of claim 9 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention is maintained for reasons of record.

It is apparent that the antibodies represented by the designations SWLA4 and SWLA5 are required in order to practice the invention. The deposit of biological organisms is considered by the Examiner to be necessary for the enablement of the current invention (see 37 CRF 1.808(a)).

If the deposit is made under terms of the Budapest Treaty, then an affidavit or declaration by Applicants or person(s) associated with the patent owner (assignee) who is in a position to make such assurances, or a statement by an attorney of record over his or her signature, stating that the deposit has been made under the terms of the Budapest Treaty *and* that all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of a patent, would satisfy the deposit requirements. See 37 CFR 1.808.

If a deposit is not made under the terms of the Budapest Treaty, then an affidavit, or declaration by Applicants or person(s) associated with the patent owner (assignee) who is in a

position to make such assurances, or a statement by an attorney of record over his or her signature, stating that the following criteria have been met:

1) during the pendency of the application, access to the deposit will be afforded to one determined by the Commissioner to be entitled thereto;

2) all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of a patent; and

3) the deposits will be maintained for a term of at least thirty (30) years from the date of the deposit or for the enforceable life of the patent or for a period of at least five (5) years after the most recent request for the furnishing of a sample of the deposited material, whichever is longest; and

4) a viability statement in accordance with the provisions of 37 CFR 1.807; and

5) the deposit will be replaced should it become necessary due to inviability,

contamination or loss of capability to function in the manner described in the specification.

In addition, the identifying information set forth in 37 CRF 1.809(d) should be added to the specification. See 37 CFR 1.803 – 1.809 for additional explanation of these requirements.

Applicant's stated intention of depositing the hybridomas producing the aforementioned antibodies is noted.

Written Description

The rejection of claims 1, 7-8, 11-12, 19-20, 23-24 and 26-29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention is maintained for reasons of record. The cancellation of claims 5 and 6 has rendered the rejection of those claims moot.

The rejected claims are drawn to a genus of antibodies, the members of which recognize any *Lactobacillus caseii* surface antigen wherein said antibodies are not cross-reactive with any

Actinomyces naeslundii cell surface antigens.

Applicant argues:

1. The instant antibodies as claimed do not require any knowledge of a specific cell surface antigen. All that is required that said antibody specifically bind to a cell surface antigen on a cariogenic bacterium.

2. The instant specification describes making hybridomas to *A. naeslundii* and *L. casei* and ELISA assays to detect antibodies specific for said microorganisms.

3. The specification also discloses how to test for cross-reactivity.

Applicant's arguments have been fully considered and deemed non-persuasive.

With regard to Point 1, the instant claims not only require the binding to a surface antigen on the target cariogenic bacterium (*Lactobacillus caseii*), but also require that the claimed antibodies are not cross-reactive with **any** *A. naeslundii* surface antigens.

With regard to Points 2 and 3, adequate written description of a DNA/protein requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA/protein itself. *Id.* at 1170, 25 USPQ2d at 1606. Moreover, as the instant claims are drawn to antibodies to any surface antigen of *Lactobacillus* sp. that cannot be cross-reactive with any *A. naeslundii* surface antigen, it is unlikely that Applicant had possession of all the antibodies encompassed by the instant claims.

As outlined previously, the courts have recently decided in Randolph J. Noelle v Seth Lederman, Leonard Chess and Michael J. Yellin (CAFC, 02-1187, 1/20/2004) that a patentee of a biotechnological invention cannot necessarily claim a genus after only describing a limited

number of species because there may be unpredictability in the results obtained from species other than those specifically enumerated. See Enzo Biochem II, 323 F.3d at 965; Regents, 119 F.3d at 1568. Therefore, based on our past precedent, as long as an applicant has disclosed a "fully characterized antigen," either by its structure, formula, chemical name, or physical properties, or by depositing the protein in a public depository, the applicant can then claim an antibody by its binding affinity to that described antigen. Noelle did not provide sufficient support for the claims to the human CD40CR antibody in his '480 application because Noelle failed to disclose the structural elements of human CD40CR antibody or antigen in his earlier '799 application. Noelle argues that because antibodies are defined by their binding affinity to antigens, not their physical structure, he sufficiently described human CD40CR antibody by stating that it binds to human CD40CR antigen. Noelle cites Enzo Biochem II for this proposition. This argument fails, however, because Noelle did not sufficiently describe the human CD40CR antigen at the time of the filing of the '799 patent application. In fact, Noelle only described the mouse antigen when he claimed the mouse, human, and genus forms of CD40CR antibodies by citing to the ATCC number of the hybridoma secreting the mouse CD40CR antibody. If Noelle had sufficiently described the human form of CD40CR antigen, he could have claimed its antibody by simply stating its binding affinity for the "fully characterized" antigen. Noelle did not describe human CD40CR antigen. Therefore, Noelle attempted to define an unknown by its binding affinity to another unknown. As a result, Noelle's claims to human forms of CD40CR antibody found in his '480 application cannot gain the benefit of the earlier filing date of his '799 patent application.

In the instant application, Applicant has failed to "fully characterize" the antigen (i.e. the

Lactobacillus caseii surface antigen) to which the claimed antibody binds. The instant claims are drawn to all antibodies with specificity to any surface antigen of *Lactobacillus casei* wherein said antibodies do not cross-react with any surface antigen of *A. naeslundii*. Consequently, since Applicant has not fully characterized the antigen to which the claimed antibodies bind, the written description requirements under 35 U.S.C 112, first paragraph have not been met.

The specification does not describe with any degree of specificity the *Lactobacillus caseii* antigen to which the members of the claimed genus of antibodies must bind, such that the specification might reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time the application was filed.

MPEP § 2163.02 states, "[a]n objective standard for determining compliance with the written description requirement is, 'does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed' ". The courts have decided:

> The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the "written description" inquiry, *whatever is now claimed.*

See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Federal Circuit, 1991). Furthermore, the written description provision of 35 USC § 112 is severable from its enablement provision; and adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC 1993) and *Amgen Inc. V. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

The Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112,

paragraph 1, ``Written Description" Requirement (66 FR 1099-1111, January 5, 2001) state, "[p]ossession may be shown in a variety of ways including description of an actual reduction to practice, or by showing the invention was 'ready for patenting' such as by disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention" (*Id.* at 1104). Moreover, because the claims encompass a genus of variant species, an adequate written description of the claimed invention must include sufficient description of at least a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics sufficient to show that Applicant was in possession of the claimed genus. However, factual evidence of an actual reduction to practice has not been disclosed by Applicant in the specification; nor has Applicant shown the invention was "ready for patenting" by disclosure of drawings or structural chemical formulas that show that the invention was complete; nor has Applicant described distinguishing identifying characteristics sufficient to show that Applicant were in possession of the claimed invention at the time the application was filed.

As evidenced by Greenspan et al. (*Nature Biotechnology* **17**: 936-937, 1999), defining epitopes is not as easy as it seems. Greenspan et al. recommends defining an epitope by the structural characterization of the molecular interface between the antigen and the antibody is necessary to define an "epitope" (page 937, column 2). According to Greenspan et al., an epitope will include residues that make contacts with a ligand, here the antibody, but are energetically neutral, or even destabilizing to binding. Furthermore, an epitope will not include any residue not contacted by the antibody, even though substitution of such a residue might

profoundly affect binding. Accordingly, it follows the epitope to which any given antibody binds can only be identified empirically. Even using a competition assay, the skilled artisan cannot determine whether an antibody binds the same epitope as another antibody because an antibody that competes with another does not necessarily bind the same epitope as the other; rather, one antibody may bind a spatially overlapping epitope to sterically hinder binding of the other. Therefore, absent a detailed and particular description of a representative number, or at least a substantial number of the members of the genus of epitopes to which the members of the claimed genus of antibodies must bind, the skilled artisan could not immediately recognize or distinguish members of the claimed genus of antibodies. Moreover, since the specification has not identified which amino acids of the genus of epitopes to which the members of the claimed genus of antibodies must bind, which are critical or essential to the binding, one skilled in the art would not recognize that Applicant had possession of the claimed invention at the time the application was filed.

In conclusion, only the specific antibodies disclosed in the specification produced by the continuous hybridoma cell lines SWLA4 and SWLA5 meet the Written description requirement.

Enablement

Claims 1-4, 7-8, 11-12, 19-20, 23-24 and 26-29 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the specific antibodies disclosed in the specification that are produced by continuous hybridoma cell lines SWLA4 and SWLA5 (which produces monoclonal antibody SWLA4 and SWLA5 respectively, does not reasonably provide enablement for any other antibody that binds to any *Lactobacillus caseii* surface antigen is

maintained for reasons of record. The cancellation of claims 5-6 has rendered the rejection of said claims moot. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims without undue experimentation.

Applicant argues:

1. Clarification is requested as claims 34, 41 and 43 are not part of the instant application.

Applicant's arguments have been fully considered and deemed non-persuasive.

With regard to Point 1, claims 1-8, 11-12, 19-20, 23-24 and 26-29 were rejected (as set forth in the body of the rejection. The Examiner apologizes for the inadvertent editing error.

As outlined previously, undue experimentation is a conclusion reached by weighing the noted factual considerations set forth below as seen in *In re* Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). A conclusion of lack of enablement means that, based on the evidence regarding each of the factors below, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation.

Breadth of the claims

The rejected claims are drawn to a genus of antibodies, the members of which bind to a *Lactobacillus casei* surface antigen wherein said antibodies do not cross-react with any *A. naeslundii* surface antigen.

Working Examples/Guidance of Specification

The specification fails to describe immunoepitopes against which the claimed antibodies are raised and must subsequently bind which would give rise to an antibody that does not cross-react with any *A. naeslundii* surface antigen. The working examples disclose specific antibodies that meet the limitations of the instant claims. However, these "examples" (e.g. SLWA4 and SWLA5) are not sufficient to provide enablement for the full scope of the rejected claims. The specification is silent as to what specific "immunoepitope" confers said genus/species specificity.

State of the prior art and Unpredictability of the art

In the instant application, Applicant has failed to "fully characterize" the antigen (the *Lactobacillus caseii* antigen) to which the claimed antibody binds. The instant claims are drawn to all antibodies with specificity to any antigen *Lactobacillus casei* wherein said antibodies have no cross-reactivity to any *A. naeslundii* surface antigen. Consequently, since Applicant has not fully characterized the antigen to which the claimed antibodies bind, hence the skilled artisan would not be able to make the claimed invention.

As evidenced by Greenspan et al. (*Nature Biotechnology* **17**: 936-937, 1999), defining epitopes is not as easy as it seems. Greenspan et al. recommends defining an epitope by the structural characterization of the molecular interface between the antigen and the antibody is necessary to define an "epitope" (page 937, column 2). According to Greenspan et al., an epitope will include residues that make contacts with a ligand, here the antibody, but are energetically neutral, or even destabilizing to binding. Furthermore, an epitope will not include any residue not contacted by the antibody, even though substitution of such a residue might profoundly affect binding. Accordingly, it follows the epitope to which any given antibody

binds can only be identified empirically. Even using a competition assay, the skilled artisan cannot determine whether an antibody binds the same epitope as another antibody because an antibody that competes with another does not necessarily bind the same epitope as the other; rather, one antibody may bind a spatially overlapping epitope to sterically hinder binding of the other. Therefore, absent a detailed and particular description of a representative number, or at least a substantial number of the members of the genus of epitopes to which the members of the claimed genus of antibodies must bind, the skilled artisan could not immediately recognize or distinguish members of the claimed genus of antibodies. Consequently, the specification is only enabling for antibodies produced by the continuous hybridoma cell lines SWLA4 and SWL5.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The rejection of claims 9 and 11-12 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the recitation of the antibody designations SWLA4 and/or SWLA5 is maintained. As no specific structure is correlated to said laboratory designations, it is impossible to determine the metes and bounds of the instant invention.

35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The rejection of claims 1, 7-8, 11, 19-20, 24 and 27-29 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ziola et al. (J. Am. Soc. Brew. Chem., 2000, Vol. 58 No. 2, pages 63-68) is maintained for reasons of record. Cancellation of claims 5 and 6 has rendered the rejection of those claims moot.

Applicant argues:

1. The instant claims are drawn to antibodies that recognize a cell surface antigen of a target cariogenic bacterium. Ziola neither discloses nor suggests any antibodies that bind a cell surface antigen of a cariogenic bacterium. Ziola is concerned with beer spoilage bacteria, not cariogenic bacteria.

Applicant's arguments have been fully considered and deemed non-persuasive.

With regard to Point 1, the target cariogenic bacterium set forth in claim 1 is *Lactobacillus caseii* (see lines 2 and 3). Ziola et al. disclose monoclonal antibodies to *Lactobacillus caseii* (see below), hence, the rejection is proper.

Ziola et al. disclose monoclonal antibodies to *Lactobacillus species* including a *Lactobacillus casei* strain (see Table 1). Said antibodies were obtained from hybridoma fusions using spleen cells from BALB/c mice injected with intact bacterial cells. Said monoclonal antibodies were used in immunoassays and hence were conjugated to a detection moiety (see page 64).

Ziola et al. differs from the instant invention in that they do not explicitly disclose the use of colloidal labels or latex beads as a detectable label or the packaging of the disclosed antibodies in a kit. However, since Ziola et al. discloses the use of said antibodies in immunoassays and that they can be conjugated to a detection moiety, it is deemed that the use of latex beads or colloidal labels are deemed obvious variations of the disclosed method. Moreover, it would have been equally obvious to package the disclosed antibodies in a kit in order to increase the ease of use of said antibodies within the disclosed immunoassays. Finally, with regard to the limitations that the claimed antibodies have at least about 80% binding efficiency as SWLA5 for *Lactobacillus caseii*, it is deemed in absence of evidence to the contrary, that since the binding efficiency of SWLA5 for *Lactobacillus caseii* has not been defined (disclosed) in the specification, any antibody that binds to the same antigen/organism as SWLA5 have "at least about 80%" of the binding efficiency as SWLA5.

New Grounds of Rejection

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 7-8, 11-12, 19-20, 23-24 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ralls et al. (WO 00/73492 – IDS filed on 11-6-2006).

Ralls et al. disclose monoclonal antibodies to *Lactobacillus* species and the use of said antibodies in immunoassays (see abstract). Ralls et al. further disclose that said antibodies can be monoclonal and be directly conjugated to labels wherein said labels can be colloidal gold, enzymes, latex particles or fluorochromes (see page 5). Additionally, Ralls et al. disclose the packaging of said antibodies in kits (see claims 7-9) and that said antibodies are made by inoculating animals with killed cariogenic bacteria (see page 5).

Ralls et al. differ from the instant invention in that they do not explicitly disclose

Lactobacillus casei as being one of the *Lactobacillus* species disclosed nor do they disclose the use of antibody fragments (i.e. single chain antibodies etc.).

As Ralls et al. disclose the means of producing antibodies to *Lactobacillus* species generally; it is deemed that the use of Lactobacillus *casei* is an obvious variant of the disclosed method. Moreover, the use of antibody fragments and single chained antibodies is common practice within the art and their use would have been obvious to the skilled artisan once a given antibody is known.

It should be noted that Applicant has argued in response to another rejection based on Ralls et al. that said reference does not disclose antibodies that specifically bind to a surface antigen of a *Lactobacillus* species cariogenic bacterium and that no specificity is discussed in the reference. However, Ralls et al. specifically disclose the use of monoclonal antibodies to *Lactobacillus sp.* wherein said antibodies are produced by immunizing animals with killed bacteria. Consequently, the resulting antibodies would have specificity to the surface antigens of the bacteria used in the immunization.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 7-9, 12, 19-20, 23-24 and 26-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rendered vague and indefinite by the use of the phrase "no significant cross-reactivity". It is unclear what is meant by said phrase as the term "significant" is not defined in the specification. What degree of cross-reactivity must be achieved before it is deemed to be "significant"? As written, it is impossible to determine the metes and bounds of the claimed invention.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Zeman whose telephone number is (571) 272-0866. The examiner can normally be reached on Monday- Thursday, 7am -5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on (571) 272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ROBERT A. ZEMAN
PRIMARY EXAMINER
June 12, 2007